

I CLAIM:

1. A laminated modular water filter comprising:

5 a plurality of superposed support units, each of which includes an annular inner supporting member and an annular outer supporting member that is disposed around said inner supporting member to define an annular stirrer-receiving space therebetween, each adjacent pair of said inner supporting members being interconnected such that a liquid-tight seal is established therebetween, each adjacent pair of said 10 outer supporting members being interconnected such that a liquid-tight seal is established therebetween, each of said inner supporting members having a central hole, and an outer periphery that is formed with a fixed guide rail unit therealong, each of said outer supporting 15 members having an inner periphery that is formed with a fixed guide rail unit therealong, said inner supporting members being arranged in a vertical row, said outer supporting members being arranged in a vertical row; 20

a plurality of stirring members connected respectively and rotatably to said superposed support units, each of said stirring members including an inner ring defining a central hole therein and rotatable along 25 said guide rail unit of a corresponding one of said inner supporting members, an outer ring disposed around and spaced apart from said inner ring and rotatable along

said guide rail unit of a corresponding one of said outer supporting members, and a plurality of ribs, each of which has an inner end formed integrally with said inner ring, and an outer end formed integrally with said outer ring, said central holes in said inner rings of said stirring members being in fluid communication with said central holes in said inner supporting members in said superposed support units;

a top cover disposed on top surfaces of said inner and outer supporting members of an uppermost one of said superposed support units and connected removably with said superposed support units, said top cover having a central hole in fluid communication with said central holes in said inner supporting members of said support units, and at least one side hole that is formed through said top cover, that is in fluid communication with said annular stirrer-receiving spaces in said superposed support units, and that permits introduction of dirty water therethrough;

a bottom cover disposed on bottom surfaces of said inner and outer supporting members of a lowermost one of said superposed support units and connected removably to said superposed support units, said bottom cover having a central hole in fluid communication with said central holes in said inner supporting members of said superposed support units, and at least one side hole that is formed through said bottom cover, that is

in fluid communication with said annular stirrer-receiving spaces in said superposed support units, and that permits introduction of the dirty water therethrough;

5 each adjacent pair of said top cover, said superposed support units, and said bottom cover defining a filter-receiving space that is formed therebetween and that is in fluid communication with said central holes in said inner supporting members and
10 said side holes in said top and bottom covers such that the dirty water can flow from said side holes in said top and bottom covers into said central holes in said inner supporting members through said filter-receiving spaces; and

15 a plurality of filter units received respectively and fittingly within said filter-receiving spaces so as to filter the dirty water when the dirty water flows through said filter-receiving spaces, thereby
20 permitting filtered water to exit from said laminated modular water filter through said central holes in said top and bottom covers.

2. The laminated modular water filter as claimed in Claim 1, wherein each of said ribs of said stirring members is curved, and has two inclined side surfaces so as to
25 provide an enhanced stirring effect.

3. The laminated modular water filter as claimed in Claim 1, wherein each of said guide rail units of said inner

and outer supporting members includes a plurality of alternately arranged L-shaped first and second guiding blocks extending integrally and radially therefrom, each of said first guiding blocks having a vertical plate portion formed integrally with a corresponding one of said inner and outer supporting members of said superposed support units, and a horizontal plate portion extending integrally and radially from an upper end of said vertical plate portion and having a bottom surface that is formed with an integral projecting grain for contact with a corresponding one of said stirring members, each of said second guiding blocks having a vertical plate portion formed integrally with the corresponding one of said inner and outer supporting members of said superposed support units, and a horizontal plate portion extending integrally and radially from a lower end of said vertical plate portion of a corresponding one of said second guiding blocks and having a top surface that is formed with an integral projecting grain for contact with the corresponding one of said stirring members, said vertical plate portions of said first and second guiding blocks of each of said guide rail units of said inner and outer supporting members of said superposed guide units being aligned with one another along a circumferential direction of a corresponding one of said guide rail units of said inner and outer supporting members of said support units

so as to confine said inner ring of a corresponding one of said stirring members between said projecting grains of said horizontal plate portions of said first and second guiding blocks of the corresponding one of said inner supporting members and so as to confine said outer ring of the corresponding one of said stirring members between said projecting grains of said horizontal plate portions of said first and second guiding blocks of the corresponding one of said outer supporting members.

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- 10 4. The laminated modular water filter as claimed in Claim 1, wherein said top cover has an upwardly and gradually converging top surface, and an outer peripheral portion that is formed with a plurality of peripheral holes formed therethrough, said bottom cover having a
- 15 downwardly and gradually converging bottom surface, and an outer peripheral portion that is formed with a plurality of peripheral holes formed therethrough, said laminated modular water filter further comprising a
- 20 plurality of lock bolt and nut units that extend respectively into said peripheral holes in each of said top and bottom covers so as to connect said top and bottom covers removably with said superposed support units.
- 25 5. The laminated modular water filter as claimed in Claim 1, wherein said inner and outer supporting members of one of each adjacent pair of said superposed support units are made of a soft material, and said inner and outer supporting members of the other one of each

adjacent pair of said superposed support units are made of a hard material so as to establish a liquid-tight seal between each adjacent pair of said inner supporting members and between each adjacent pair of said outer supporting members.

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6. The laminated modular water filter as claimed in Claim 5, wherein said soft material is polyethylene, and said hard material is propylene-butadiene-styrene co-polymer.

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7. The laminated modular water filter as claimed in Claim 1, wherein each of said inner supporting members has a circumferential row of grooves formed in one side surface thereof, and a circumferential row of tongues formed on the other side surface thereof, said tongues of each of said inner supporting members engaging respectively and fittingly said grooves in an adjacent one of said inner supporting members so that said inner supporting members are arranged in vertical row.

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8. The laminated modular water filter as claimed in Claim 1, wherein each of said outer supporting members has an annular groove formed in one side surface thereof, and an annular rib formed on the other side surface thereof, said annular rib of each of said outer supporting members engaging fittingly said annular groove in an adjacent one of said outer supporting members so that said outer supporting members are arranged in a vertical row.

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